

Teaching Factory Learning Program at Telkom Vocational High School Malang During the Pandemic

Putrinda Inayatul Maula, Syaad Patmanthara, Hakkun Elmunsyah

Universitas Negeri Malang, Indonesia

Email: putrinda.inayatul.2005518@students.um.ac.id

Abstract. Teaching factory is a learning concept that adapts the learning conditions in school to those in the industry. The problem with vocational education nowadays is the lack of practicum learning absorbtipn caused by the Covid-19 pandemic. Therefore, the focus of this research was the teaching factory learning program at Telkom Vocational High School Malang (TVHSM) during the pandemic. This research method used a qualitative approach. The location of this research was in TVHSM. The results showed that the TVHSM prepared the program funding through industry that suited the students' expertise as partners. Their teaching factory implemented teacher as the primary instructor since the learning was done completely online. There were also obstacles during the teaching factory process, particularly heightened due to the pandemic: lack of interaction between students and industry. However, this problem could be solved with enthusiasm and high learning motivation.

Keywords: Teaching Factory, Students Competence, Learning Motivation, Vocational High School

INTRODUCTION

Teaching factory (TEFA) learning programs. Is an effective learning model that adjusts the learning in schools within the industry to benefit students' soft skills and hard (Putri et al., 2019). Hadam et al., (2017) stated that TEFA learning model is appropriately for block systems because it allows students to receive and obtain materials to the fullest. Through TEFA, students practice limited skills in learning, and but are also train to cooperate in groups and communicate with others (Rohmah et al., 2019). The opinion above is supported by the research of Prianto et al., (2021) in which TEFA-based learning model forms the work readiness of graduates when jumping into the industrial world. The TEFA learning model also has a meaningful dual purpose as a learning process and a place for entrepreneurship (Nurtanto et al., 2017).

TEFA in Vocational High School (VHS) not only trains students to practice for real but also to serve customers and how to solve customer problems in the workplace (Mulyanto & Purbonuswanto., 2020). Perdana (2018) mentions the ideal aspects for TEFA implementation which include, suitability of teaching material objectives, adequate human resources, completeness of school facilities, and the SOP (Standard Operating Procedure). These aspects when implemented in schools must be based on market-oriented curriculum, learning process, superior human resources, organizational management as well as school environment and industry that support each other (Hartanto et al., 2016). Handayani et al., (2018) mentioned that organizing and directing are also addressed in the implementation of TEFA. Direction consists of giving orders, prohibitions, and guidance to TEFA actors, while organizing contains grouping students following their competencies. TEFA implementation in VHS is oriented to the management process in classrooms and practice rooms that are adapted to the work standards in the industry (Abdullah, 2020).

TEFA is a governmental program to create a link and match between VHS and the business industrial world. In implementation, it still has problems. Some vocational schools still apply regular learning on schedule rather than continuously and students have not directly involved in TEFA learning (Yunanto, 2016). In addition, TEFA implementation in VHS is hampered by several problems, such as

the resulting product is not licensed, the absence of industry-standard quality control, the absence of funding assistance from the government, and business world/industrial world, and inexperienced TEFA managers (Sanatang, 2020). However, the problem of vocational education during the Covid-19 pandemic is the lack of full practicum material because vocational education applies more practice. TEFA program is expected to produce graduates who are ready to work and compete in the business world/industrial world especially in the pandemic period. Therefore, the sub-focus of this research was teaching factories plan in SE (Software Engineering) TMVHS during the pandemic, the implementation of teaching factories in TVHSM during the pandemic, and the evaluation of teaching factors in TVHSM during the pandemic which included supporting factors and inhibitions.

METHOD

This research was qualitative to describe the implementation of the SE teaching factory learning program at TVHSM. The data sources in this study are teaching factory coordinators, curriculum staff, and SE competency teachers.

The data collection technique in this study consisted of three ways, namely: observation, documentation, and interviews. Observation was carried out by visiting TVHSM directly to find the implementation of teaching factory learning. Meanwhile, the documentation in this research was documents and archives from the school and photos of teaching factory learning activities. The interview was conducted under the prepared guidelines and submitted to the informant to obtain data. The focus of the interview was: (1) Teaching factory planning in TVHSM such as the to obtain cooperation with industry, consideration in finding cooperation partners, and the cooperation stage between TVHSM and industry as partner in the implementation; (2) The implementation of teaching factory in TVHSM such as students' special criteria who took teaching factory classes at TVHSM and technical implementation of teaching factory, especially during pandemic times; and (3) Evaluation of teaching factory learning programs at TVHSM which included implementation support and inhibit factors, especially during a pandemic.

The data analysis techniques used in this research are were quoted from Creswell's statement that the qualitative data analysis process includes: (1) Organizing data; (2) Reading and viewing all data; (3) Code-giving; (4) Using code as material to create descriptions; (5) Connecting between themes; and (6) Giving meaning to the theme. Thus, the qualitative data analysis techniques in this study were concluded in three stages, namely data reduction, data presentation, and data conclusion.

RESULTS AND DISCUSSION

Based on the conducted research, TMVHS implemented a teaching factory learning program. The discussion results of the teaching factory learning program implementation at TVHSM during the pandemic will be outlined below.

Teaching Factory Learning Program at TVHSM During the Pandemic

TMVHS already implemented a teaching factory learning program. Thus, VHS has a teaching factory room that serves as a student practice room. TVHSM has also established cooperative relationships with the industry in implementing teaching factory learning programs. From the cooperation process, students learned to work on projects and obtained fee from their working results in the form of school cost-cutting. In addition, students could also intern in the industry partners. Therefore, with the teaching factory, the school could update students' skills following the needs of the industry. The school also provides opportunities for teachers to train in the industry and taught the results to students.

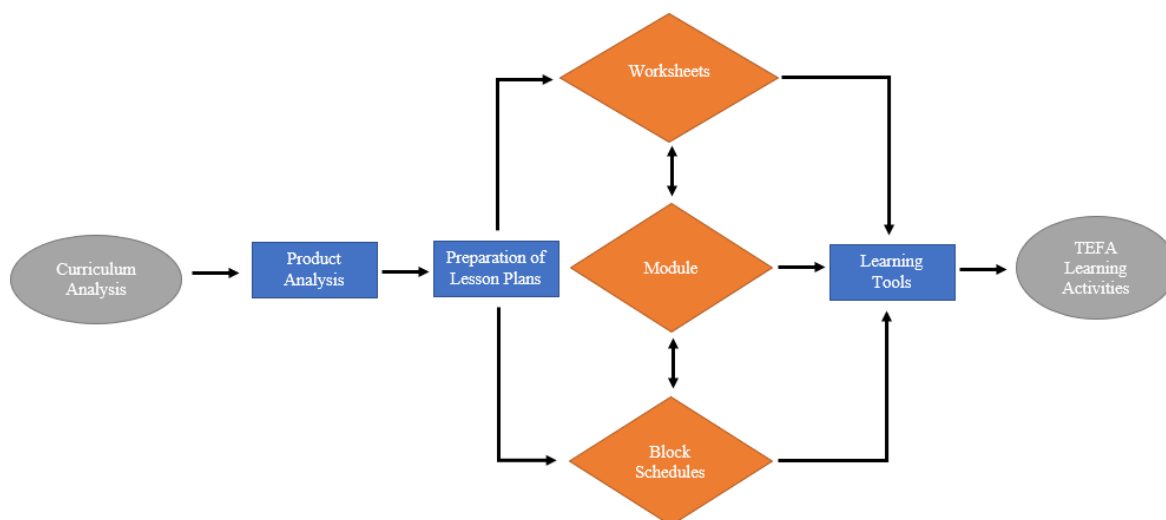


Figure 1. Flowchart of the TEFA learning program at TVHSM During the Pandemic

In figure 1, the teaching factory learning programs at TVHSM during the pandemic began from curriculum analysis through consulting and accommodating information from the industry which then led to the latest materials. Then, the school evaluated by taking some materials that for education and produced a product analysis needed by the industry nowadays.

After conducting product analysis, the school then prepared the lesson plans through training the teachers and curriculum staffs that resulted in learning devices such as job sheets, modules, and block schedules adapted to the current online learning model. Of the three learning devices to distribute to students, TVHSM uses the Webex application in conducting teaching factory learning activities. The material delivery in teaching factory learning to students started from supplying the work sheet, in which students were asked to analyse the material. If students experienced difficulties would explain through a screen-sharing in Webex.

Planning of Teaching Factory Learning Program at TVHSM

School program planning is related to the mission vision and learning planning. In formulating the vision and mission of vocational education it would be nice to involve teachers, school leaders, and shareholders so that the planned goals follow the expectations. Therefore, the implementation of good learning activities requires good planning as well. Before learning, an excellent learning plan should be made to create effective and efficient learning (Nadzir, 2013). Planning in this research includes the preparation of VHS to obtain cooperation with industry, consideration of VHS in finding cooperation partners, and the stages of cooperation between VHS and industry.

The preparation of TVHSM to get cooperation with industry in the implementation of the teaching factory begins by collaborating in the form of projects from the software house which is a place for the SE expertise competency industry which then communicates with students in the form of project challenges that must be done.

The teaching factory industry is an industry was the previous industry partner of TVHSM that was selected based on the suitability with the students' expertise. The school was expected to also provide employment opportunities for students through cooperation with the industry.

The stage of cooperation between TVHSM and industry as a cooperation partner in the implementation of a teaching factory began with the establishment of good relations between schools and industry through the internship program. The industry also benefited by getting students with skills

to help the industry in completing projects. Therefore, a cooperation agreement was made between TVHSM and the industry.

Implementation of Teaching Factory Learning Program at TVHSM

According to Manalu and Hermanto (2017), the teaching factory implementation aims to prepare ready-to-work vocational graduates as expected by the business world/industrial world, prepare vocational school graduates for higher level education, help students in determining the field of work following their skills, define the skills that are needed in the working world, provide a wider scope of recruitment opportunities for vocational graduates, establish cooperation with business world/industrial world, provide opportunities for vocational students to train and develop their skills and knowledge so that they can determine and make decisions about careers to be selected after graduation, provide opportunities to teachers to expand insights regarding teaching factory learning, provide opportunities for schools to build cooperation with industry, create learning that attracts students, provides students with an understanding that soft skills and hard skills are needed in business world/industrial world, as a field of training and production-based practices directly for market-oriented students, help funding the maintenance, addition of facilities, and operational costs of vocational schools, develop the entrepreneurial spirit of teachers and students, develop the independent and confident attitude of vocational students.

TVHSM has two types of teaching factory learning, namely in regular classes and industrial classes. The regular class in question was X-XII class because in it included productive subjects and the learning curriculum was adjusted between schools and industry. Meanwhile, the industrial classroom teaching factory learning contained fewer than 40 students.

Technical implementation of a teaching factory in TVHSM began with a work contract between the school and the industry. In regular classes and industrial classes, the implementation follows a productive learning schedule. The difference between the two was in the project. In regular classes, students received projects from teachers in materials adapted to the industry while the industrial classes projects were done based on orders from industry and conducted each part by students. However, in current pandemic situation, teachers became the primary instructors in helping students so that their role is to help the industry supervise and guide students. Since students fully learn online from home. Therefore, in controlling student learning, TVHSM uses Webex applications for the learning process. Students could conduct online learning consultations with teachers through the application.

Evaluation of Teaching Factory Learning Program at TVHSM

Evaluation in education can be interpreted as a process to gather the information to be used as a consideration to decide about whether or not to improve the learning system under the planned goals. Can also be said as a tool or procedure to find out and measure something based on predefined ways and rules (Muryadi, 2017). Evaluation of the teaching factory learning program from this study included supporting and inhibitions factors of TEFA learning programs in vocational high school, particularly in TVHSM.

The supporting factor in this research was the support from students with their enthusiasm and high-learning motivation. Students explored a lot and looked for learning references without being asked by the teacher. Hence, students who understand the material can teach others who do not understand. In addition, at TVHSM, every student is required to have a laptop/computer to prevent learning obstacles since it was done from home.

The inhibiting factor of the teaching factory learning program at TVHSM reviewed from the circumstances was the reduced interaction between students and industry. The online learning condition was constrained by network problem and students' understanding since everything was conducted remotely/online.

CONCLUSION

The government's efforts in improving the link and match between VHS and business world/industrial world through the preparation of a teaching factory-based learning model is a fairly appropriate step in preparing vocational school graduates. Currently, the development of VHS began to move from its orientation from local labour market to international labour market. Therefore, the teaching factory stages described in this study have three stages starting from planning, implementation, and evaluation. The planning stage was carried out to prepare everything as a support which includes preparation, consideration, and stages of cooperation between VHS and partners. The implementation stage of the teaching factory learning model conducted by TVHSM included student-specific criteria and technical teaching factory implementation. The last stage was the evaluation stage to find the supporting and inhibitions factors of the teaching factory in TVHSM.

The preparations made by TVHSM done by looking for the industry as a cooperation partner. That followed the students' expertise. While the stage of cooperation began with initial cooperation through the internship program. The implementation of teaching factory at TVHSM did not have special criteria or quota of students who followed learning in regular classes, because all students of SE skill competency, from X-XII class followed the learning, the implementation of teaching factory learning in industrial classes had a quota of no more than 40 students. Meanwhile, the technical implementation of learning was that the teacher-became the main instructor in helping students to help the industry supervise and guide students. There were inhibitory factors during the teaching factory learning process, especially in the pandemic season, namely reduced interaction between students and industry. But these inhibitory factors was overcome by students' enthusiasm and high learning motivation so that the learning process ran quite well.

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